REMARKS

Claims 1 and 3-5 are pending. By this Amendment, claim 1 is amended.

Claims 1 and 5 were rejected under 35 U.S.C. § 102(b) over Nakamura et al. (U.S. Patent No. 5,518,390). The rejection is respectfully traversed.

Claim 1 recites an injection control method for a die-casting machine, wherein molten material is injected into a casting mold by an injection cylinder unit. The method includes setting target velocity data specifying an injection operation required for the injection cylinder in advance and performing a first shot of an injection operation, and recording command data provided to the injection cylinder unit and detecting velocity data indicating the operation performed by the injection cylinder unit during the first shot of the injection operation. The method further includes determining a difference between the detected velocity data and the target velocity data and calculating a correction value based on the difference by operating the injection cylinder unit for a predetermined number of the injection shots by injection position feedback control. The method further includes using the calculated correction value and generating command data for a second shot of the injection operation. The method further includes operating the injection cylinder unit by providing to it the command data for the second shot of the injection operation while shifting the control to open loop control of injection velocity by command data generated from the correction value and the previous command data.

Nakamura et al. do not disclose shifting the control to open loop control of injection velocity by command data generated from the correction value and the previous command data, as recited in claim 1. In response to Applicants' arguments, the August 13, 2004 Advisory Action states: "This is not persuasive because Nakamura et al. clearly shows shifting to open loop control of injection velocity by using command data generated from the correction value and the previous command data (Column 2, lines 24-26, 34-42; It is noted that previous command data will be used in the calculation of the correction value.)"

It is respectfully submitted that what Nakamura et al. disclose in Column 2, lines 24-42 is the operation of the actuator 2 according to open loop control for obtaining the correction value Av. With respect to the Examiner's determination "that previous command data will be used in the calculation of the correction value," it is respectfully submitted that Nakamura et al. do not disclose or suggest this feature. The Examiner is respectfully requested to point out with particularity, by column and line number, where Nakamura et al. allegedly disclose this feature. As disclosed in column 2, line 46 of Nakamura et al., the correction value Av is clearly shown as

calculated as the difference between the velocity set point Vs and the measured speed Vd plus a constant K times the change in the measured pressure ΔPd divided by the change in time Δt. Nakamura et al. further disclose in column 4, lines 50-52 that the correction value Av is provided to the command value Vc of speed to eliminate the deviation of the measured speed Vd from the speed set point Vs. Nakamura et al. do not disclose or suggest shifting the control to open loop control of injection velocity by command data generated from the correction value and the previous command data, as recited in claim 1.

As discussed in the previous response, although Nakamura et al. disclose in column 2, lines 55-56, that the speed control of the actuator becomes basically open loop control, since the input is adjusted while monitoring the output, the process of Nakamura is, in essence, merely feedback control. See column 3, lines 4-15. With respect to the Examiner's allegation that that column 3, lines 4-15 of Nakamura et al. "is cited to further show the calculation of the correction factor, which is used during Nakamura's open loop control," it is respectfully submitted that what is disclosed in column 3, lines 4-15, of Nakamura et al. is feedback control, not open loop control.

As discussed in column 1, lines 41-53, in particular lines 49-50, of Nakamura et al., an open loop control system as disclosed by JP62-270803 (copy enclosed with English abstract) does not provide feedback control for the speed and pressure of an actuator. As discussed above, Nakamura et al. clearly disclose in column 3, lines 4-15, that their invention provides the correction value Av to the command value Vc when a deviation in the measured speed Vd occurs so as to suppress the deviation and provide a high accuracy of speed control. In other words, when Nakamura et al. detect a deviation, control of the actuator 2 is switched to feedback control, i.e., feedback of the correction value Av to the command value Vc.

With respect to the assertion in the Advisory Action that Applicants' arguments that Nakamura et al. implicitly disclose feedback control when a deviation occurs are not persuasive "because open claim construction does not exclude the presence of an additional feedback control step," it is respectfully submitted that Applicants' open ended claim construction is irrelevant to the determination of whether Nakamura et al. anticipates claim 1. As discussed above, Nakamura et al. do not disclose or suggest shifting the control to open loop control of injection velocity by command data generated from the correction value and the previous command data. As Nakamura et al. do not disclose or suggest each and every feature of claim 1, Nakamura et al. cannot anticipate or render obvious claim 1, regardless of whether claim 1 is open ended or closed ended.

Claim 5 recites additional features of the invention and is allowance for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

Reconsideration and withdrawal of the rejection of claims 1 and 5 are respectfully requested.

Claims 3 and 4 were rejected under 35 U.S.C. § 103(a) over Nakamura et al. in view of Bulgrin (U.S. Patent No. 5,997,778). The rejection is respectfully traversed.

Claims 3 and 4 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

Furthermore, it is respectfully submitted that Bulgrin fails to cure the deficiencies of Nakamura et al. with respect to claim 1, and even assuming it would have been obvious to combine the reference teachings, the combination would not include all the features of claim 1 and would fail to present a *prima facie* case of obviousness against claim 1.

Reconsideration and withdrawal of the rejection of claims 3 and 4 are respectfully requested.

In view of the above remarks, Applicants respectfully submit that all of the claims are allowable and that the entire application is in condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

PILLSBURY WINTHROP LLP

John P. Darling
Reg. No. 44,482
Tel. No. (703) 905-2045
Fax No. 703 905-2500

Date: September 7, 2004

P.O. Box 10500
McLean, VA 22102
(703) 905-2000

Attachment:

JP62-270803 (with English abstract)

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